**In the Drawings**

In FIG. 1, the term "RELATED" in the legend is replaced with "PRIOR".

Attachments

Annotated Sheet

Replacement Sheet

## REMARKS

The Examiner is thanked for the thorough examination of the present application. The Office Action, however, tentatively rejected all claims 1-24. Claim 8 has been amended to depend from claim 6, and claim 16 has been amended to depend from claim 14. Other than that, no amendments are believed to be necessary or appropriate to distinguish over the cited art.

### Drawing Objections

The Office Action objected to Figure 1, indicating that a legend such as "Prior Art" should be added to designate that drawing sheet. Applicant has amended this drawing sheet accordingly.

### Claim rejections 35 U.S.C. 102(b)

Claims 1, 6, 8, 9, 14, 16, 17, 22 and 24 are rejected under 35 U.S.C. 102(e) as allegedly anticipated by Kawabe et al. (U.S. 2003/0169247). Applicant respectfully traverses rejections for at least the following reasons.

Claim 1 recites:

> 1. A driving circuit for outputting a video signal to control a liquid crystal display panel according to an image control signal provided by a host, the liquid crystal display panel including a plurality of light emitting elements and display cells, the display cells respectively connecting to a plurality of data electrodes and gate electrodes, the driving circuit comprising:
>
> a gate driver outputting scan signals to the gate electrodes;
>
> ***a data driver outputting the video signals to the data electrodes according to the image control signal, and a voltage controlling signal corresponding to a brightness adjustment signal***; and
>
> a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

(Emphasis added.) Claim 1 patently defines over the cited art for at least the reason that the cited art fails to disclose at least the features emphasized above. In this regard, Kawabe does not teach or suggest a data driver outputting a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

Applicant respectfully submits that the Office Action's position is misplaced. First, **Kawabe does not teach or suggest a data driver outputting a voltage controlling signal corresponding to a brightness adjustment signal.** Claim 1 recites a data driver outputting **two different kinds of signals: the video signals to the data electrodes according to the image control signal** and **a voltage controlling signal corresponding to a brightness adjustment signal**. It is known in the art that the gray scale voltage disclosed by Kawabe (page 2, paragraph 10 lines 1-10) is a basic video signal required by an conventional LCD display panel for reproducing the image data and is generated according to an image data. Thus, the gray scale voltage disclosed by Kawabe (page 2, paragraph 10 Lines 1-10) corresponds to the video signals to the data electrodes according to the image control signal recited in claim 1, *not the voltage controlling signal corresponding to a brightness adjustment signal recited in claim 1.*

The gray scale voltage disclosed by Kawabe is obviously different from the voltage controlling signal recited in claim 1. Since Kawabe does not teach or suggest a voltage controlling signal and a brightness adjustment signal, Kawabe does not teach or

suggest a data driver outputting the voltage controlling signal, wherein the voltage controlling signal is generated corresponding to a brightness adjustment signal.

Furthermore, **Kawabe does not teach or suggest a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.** Instead, Kawabe discloses a drain driver (a video signal drive circuit) for generating gray scale voltages in accordance with an image to be reproduced (video data supplied to the display device) (page 2, paragraph 10 Lines 1-10). It is known in the art that the drain driver disclosed by Kawabe (page 2, paragraph 10 Lines 1-10) is an essential device in a conventional LCD display panel for generating the video signals (including the gray scale voltages) to the data electrodes in accordance with an image to be reproduced. Thus, the drain driver disclosed by Kawabe (page 2, paragraph 10 Lines 1-10) corresponds to the data driver outputting the video signals to the data electrodes according to the image control signal recited in claim 1, *not the driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal recited in claim 1.* In addition, the driving voltage recited in claim 1 is generated according to the voltage controlling signal recited in claim 1, and the voltage controlling signal recited in claim 1 is generated according to the brightness adjustment signal recited in claim 1. Since Kawabe dose not disclose a data driver outputting a voltage controlling signal corresponding to a brightness adjustment signal, Kawabe dose not disclose a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

For at least these reasons reason, claim 1 is allowable over the cited reference. Insofar as claim 1 is allowable, claims 2-8, which depend from claim 1, are also allowable on their own merits in claiming additional elements not included in claim 1.

Claim 9 recites:

> 9. A driving circuit for outputting a video signal to control a liquid crystal display panel according to an image control signal provided by a host, the liquid crystal display panel including a plurality of light emitting elements and display cells, the display cells respectively connecting to a plurality of data electrodes and gate electrodes, the driving circuit comprising:
>
> ***a gate driver outputting scan signals to the gate electrodes, and a voltage controlling signal corresponding to a brightness adjustment signal***;
>
> a data driver outputting the video signals to the data electrodes according to the image control signal; and
>
> ***a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.***

(*Emphasis added.*) Claim 9 patently defines over the cited art for at least the reason that the cited art fails to disclose at least the features emphasized above. In this regard, Kawabe does not teach or suggest a gate driver outputting a voltage controlling signal corresponding to a brightness adjustment signal and a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal.

Applicant respectfully submit that the Office Action's position is misplaced. First, as described above, **Kawabe does not disclose a voltage controlling signal and a brightness adjustment signal. Thus, Kawabe does not disclose a gate driver outputting a voltage controlling signal corresponding to a brightness adjustment signal.**

Furthermore, as described above in connection with claim 1, Kawabe discloses a drain driver (a video signal drive circuit) for generating gray scale voltages in accordance with an image to be reproduced (video data supplied to the display device) (page 2, paragraph 10 Lines 1-10). It is known in the art that the drain driver disclosed by Kawabe (page 2, paragraph 10 Lines 1-10) is an essential device in a conventional LCD display panel for generating the video signals (including the gray scale voltages) to the data electrodes in accordance with an image to be reproduced. Thus, the drain driver disclosed by Kawabe (page 2, paragraph 10 Lines 1-10) corresponds to the data driver outputting the video signals to the data electrodes according to the image control signal recited in claim 9, and *not the driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal recited in claim 9*. In addition, the driving voltage recited in claim 9 is generated according to the voltage controlling signal recited in claim 9, and the voltage controlling signal recited in claim 9 is generated according to the brightness adjustment signal recited in claim 9.

Since Kawabe dose not disclose a gate driver outputting a voltage controlling signal corresponding to a brightness adjustment signal, Kawabe dose not disclose a driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal either. For at least this reason, claim 9 is allowable over the cited reference. Insofar as claim 9 is allowable, claims 10-16, which depend from claim 9, are also allowable on their own merits in claiming additional elements not included in claim 9.

Independent claim 17 recites:

> 17. recites a liquid crystal display for displaying images according to an image control signal provided by a host, comprising:
>
> a liquid crystal display panel comprising a plurality of display cells respectively connected to a plurality of data electrodes and gate electrodes;
>
> ***a panel driver outputting scan signals to the gate electrodes, the video signals to the data electrodes according to the image control signal, and a voltage controlling signal corresponding to a brightness adjustment signal;***
>
> ***a driving voltage generator outputting a driving voltage according to the voltage controlling signal; and***
>
> ***a plurality of light emitting elements connected in serial and coupled to the driving voltage generator generating brightness corresponding to the driving voltage output by the driving voltage generator.***

(*Emphasis added.*) Claim 17 patently defines over the cited art for at least the reason that the cited art fails to disclose at least the features emphasized above. In this regard,Kawabe fails to teach or suggest a panel driver outputting a voltage controlling signal corresponding to a brightness adjustment signal, a driving voltage generator outputting a driving voltage according to the voltage controlling signal and a plurality of light emitting elements connected in serial and coupled to the driving voltage generator generating brightness corresponding to the driving voltage output by the driving voltage generator.

As discussed above, Kawabe fails to disclose a voltage controlling signal and a brightness adjustment signal. Consequently, Kawabe does not disclose a panel driver outputting a voltage controlling signal corresponding to a brightness adjustment signal.

In addition, as also described above, Kawabe discloses a drain driver (a video signal drive circuit) for generating gray scale voltages in accordance with an image to be reproduced (video data supplied to the display device) (page 2, paragraph 10 Lines

1-10). It is known in the art that the drain driver is an essential device in a conventional LCD display panel for generating the video signals (including the gray scale voltages) to the data electrodes in accordance with an image to be reproduced. Thus, the drain driver disclosed by Kawabe (page 2, paragraph 10 Lines 1-10) corresponds to the panel driver outputting the video signals to the data electrodes according to the image control signal recited in claim 17, and *not the driving voltage generator outputting a driving voltage to the light emitting elements according to the voltage controlling signal recited in claim 17*. Furthermore, the driving voltage recited in claim 17 is generated according to the voltage controlling signal recited in claim 17, and the voltage controlling signal recited in claim 17 is generated according to the brightness adjustment signal recited in claim 17. Since Kawabe dose not disclose a panel driver outputting a voltage controlling signal corresponding to a brightness adjustment signal, Kawabe dose not disclose a driving voltage generator outputting a driving voltage according to the voltage controlling signal either. For at least this reason, the rejection of claim 17 should be withdrawn.

In addition, Kawabe does not teach or suggest a plurality of light emitting elements *connected in serial* and *coupled to the driving voltage generator* generating brightness corresponding to the driving voltage output by the driving voltage generator. Furthermore, since Kawabe does not disclose the driving voltage generator and driving voltage, Kawabe does not disclose a plurality of light emitting elements connected in serial and coupled to the driving voltage generator generating brightness corresponding to the driving voltage output by the driving voltage generator either.

For at least these reasons, claim 17 is allowable over the cited art. Insofar as claim 17 is allowable, claims 18-24, which depend from claim 17, are also allowable on their own merits in claiming additional elements not included in claim 17.

For at least the reasons set forth above, all claims patently define over the cited art. In addition to the foregoing reasons, claims 6 and 8 further define over the cited art for the following additional reasons.

Claim 6 recites: "the driving circuit as claimed in claim 1, wherein the light emitting elements comprise a plurality of LEDs connected in serial, parallel, or a combination of both, and a first terminal coupled to the driving voltage generator and a second terminal coupled to the data driver." Kawabe does not teach or suggest this feature.

In this regard, since Kawabe does not disclose the driving voltage generator, Kawabe does not disclose he light emitting elements comprise a plurality of LEDs connected in serial, parallel, or a combination of both, and a first terminal coupled to the driving voltage generator and a second terminal coupled to the data driver either. For at least this additional reason, claims 6 is allowable over the cited references. Insofar as claims 6 is allowable, claims 14 and 22 (which recite similar limitations) are also allowable.

In addition, claim 8, as amended herein, recites the driving circuit as claimed in claim 6, further comprising a load coupled between the second terminal and ground. Kawabe does not teach or suggest a load coupled between the second terminal and ground (Page 7, paragraph 87-89). For at least this reason, claims 8 is allowable over

the cited references. Insofar as claims 8 is allowable, claims 16 and 24 (which recite similar limitations and are rejected by the same reasons) are also allowable.

**Rejections Under 35 U.S.C. 103(a)**

Claims 2-5, 7, 10-12, 15, 18-21 and 24 stand rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Kawabe et al. (U.S. 2003/0169247) as applied to claims 1, 6, 8, 9, 14, 16, 17, 22, and 24 above, and further in view of Sono. These claims define over the cited art for at least the same reasons as the independent claims, discussed above. In addition, Applicant respectfully requests reconsideration of these rejections for at least the following additional reasons.

Claim 3 recites the driving circuit as claimed in claim 1, wherein the data driver adjusts the ratio between the periods of the high voltage level and the low voltage level according to the brightness adjustment signal. **Neither Kawabe nor Sono teach, disclose or suggest that the data driver adjusts the ratio between the periods of the high voltage level and the low voltage level according to the brightness adjustment signal.**

Applicant respectfully traverses the position taken by the Office Action. First, neither Kawabe nor Sono discloses the brightness adjustment signal. **In addition, the polarization angle adjustor disclosed by Sono is used for adjusting the deflection angle of a digital liquid crystal display device (page 1, paragraph 12 and claim 1), not the ratio between the periods of the high voltage level and the low voltage level recited in claim 3.**

For at least this reason, claims 3 is allowable over the cited references. Insofar as claims 3 is allowable, claims 11 and 19 (which recited similar features and are rejected on the same grounds) are also allowable.

Claim 4 recites the driving circuit as claimed in claim 3, wherein the driving voltage generator comprises:

> a switch having a control gate receiving the voltage controlling signal and turned on or off according to the voltage level of the voltage controlling signal;
> an inductor coupled between the switch and a power source;
> a diode coupled between the switch and the inductor; and
> a capacitor coupled to the diode, wherein the connection point of the capacitor and the diode outputs the driving voltage.

Neither Kawabe nor Sono teach, disclose or suggest that a diode coupled between the switch and the inductor and a capacitor coupled to the diode, wherein the connection point of the capacitor and the diode outputs the driving voltage.

Applicant respectfully traverses the position taken by the Office Action. First, neither Kawabe nor Sono discloses the driving voltage. **In addition, Sono does not disclose a diode coupled between the switch and the inductor and a capacitor coupled to the diode, wherein the connection point of the capacitor and the diode outputs the driving voltage (page 3, paragraph 38-41).**

For at least this reason, claim 4 is allowable over the cited references. Insofar as claims 4 is allowable, claims 12 and 20 (which recited similar features and are rejected on the same grounds) are also allowable.

Claim 5 recites the driving circuit as claimed in claim 4, wherein the level of the driving voltage is generated according to the ratio between the periods of the high voltage level and the low voltage level.

Neither Kawabe nor Sono teach, disclose or suggest a ratio between the periods of the high voltage level and the low voltage level and the level of the driving voltage is generated according to the ratio between the periods of the high voltage level and the low voltage level. Applicant respectfully traverses the position of the Office Action. Sono does not disclose the level of the driving voltage is generated according to the ratio between the periods of the high voltage level and the low voltage level (page 1,2, paragraph 12-13 and page 2,3, paragraph 32).

For at least this reason, claim 5 is allowable over the cited references. Insofar as claims 5 is allowable, claims 13 and 21 (which recited similar features and are rejected on the same grounds) are also allowable.

Claim 7 recites the driving circuit as claimed in claim 6, wherein the data driver adjusts the ratio between the periods of the high voltage level and the low voltage level of the voltage controlling signal according to the voltage level of the second terminal. Neither Kawabe nor Sono teach, disclose or suggest that the data driver adjusts the ratio between the periods of the high voltage level and the low voltage level of the voltage controlling signal according to the voltage level of the second terminal.

Applicant disagrees with the position taken in the Office Action, which applies this art. First of all, neither Kawabe nor Sono discloses the second terminal. In addition, the polarization angle adjustor disclosed by Sono is used for adjusting the deflection angle of a digital liquid crystal display device (page 1, paragraph 12 and claim 1), not the ratio

between the periods of the high voltage level and the low voltage level recited in claim 7.

For at least this reason, claim 7 is allowable over the cited references. Insofar as claim 7 is allowable, claims 15 and 23 (which recited similar features and are rejected on the same grounds) are also allowable.

## CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

No fee is believed to be due in connection with this submission. If, however, any fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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By: _____

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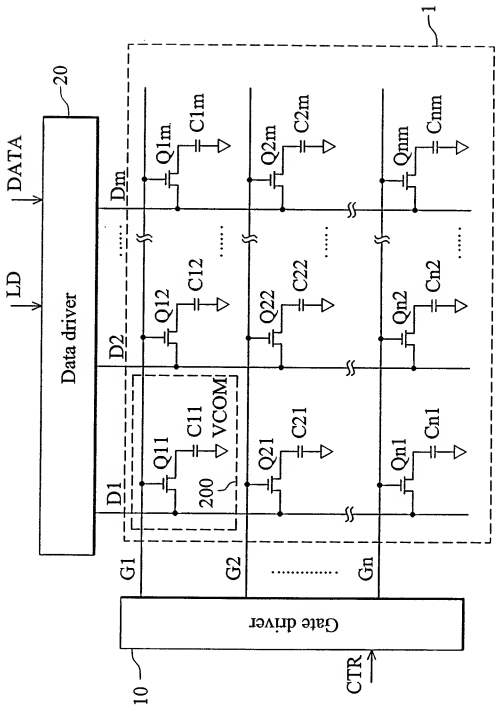


FIG. 1 (RELATED ART)

Prior